

OCT 31 2007

Application No.: 09/626026

Case No.: 54942US002

CLAIMS

The current claim set of the application is presented below. Indications as to the status of the claims ("original", "currently amended", "cancelled", "new", etc.) appear in parentheses after the claim number. Deletions are identified in bold with double brackets and strikethrough (e.g. **[[deletion]]**) and new text is identified in bold with underlining (e.g. new language).

1-44. (Canceled)

45. (Canceled) ~~A polymeric composition, comprising, a polyurethane polymer derived from a polyisocyanate compound and a polyactive hydrogen compound, said polyurethane polymer endcapped at a terminal position with a group including at least one antimicrobial quaternary ammonium group, wherein the quaternary ammonium group is derived from a monol or polyol or a vinylic functional compound, and wherein said polymeric composition is soluble in water.~~

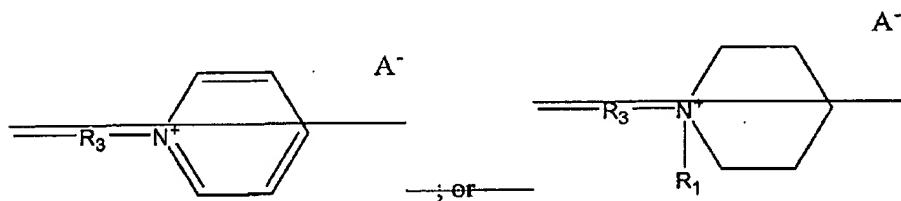
46-48. (Canceled)

49. (Canceled) ~~The polymeric composition of claim 45, wherein the at least one antimicrobial quaternary ammonium group is located on an addition polymerized group and wherein said polyurethane polymer is derived from a monol or polyol vinylic compound and wherein the total equivalents of isocyanate used to form said polyurethane polymer is greater than the equivalents of active hydrogen groups contributed by said polyactive hydrogen compound used to form said polyurethane polymer and said monol or polyol vinylic compound, and the addition polymerization group is formed by reaction of said monol or polyol vinylic compound with a vinylic compound having at least one antimicrobial quaternary ammonium group.~~

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50. (Canceled) The polymeric composition of claim 49, wherein the one antimicrobial quaternary ammonium group of said vinylic compound is selected from $\text{N}^+(\text{R}_1)_2\text{R}_2\text{A}^-$; $\text{N}^+(\text{R}_2)_2\text{R}_1\text{A}^-$;



wherein each R_1 is independently C1-C4 alkyl optionally substituted in or on the chain by N, O, and S, benzyl, C1-C4 substituted benzyl, and $\text{Ph}-\text{O}-\text{CH}_2-\text{CH}_2$ where Ph = phenyl; R_2 is C8-C26 straight or branched chain alkyl or C8-C30 aralkyl optionally substituted in or on the chain by N, O and S; R_3 is a linkage group which is C8-C26 alkyl optionally substituted in or on the chain by N, O and S, and A is an anionic counter ion and is selected from halogen, alkyl sulfate, carboxylate, sulfonate, sulfate, phosphonate or phosphate.

51. (Cancelled)

52. (Cancelled) An article comprising a substrate coated with the polymeric composition of claim 45.

53. (Cancelled)

54. (Cancelled)

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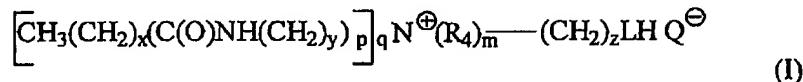
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55. (Canceled) The polymeric composition of claim 45 wherein the polyisocyanate compound is a diisocyanate compound and the polyactive hydrogen compound is a diaactive hydrogen compound.

56. (Cancelled)

57. (Canceled) A polymeric composition, comprising a polyurethane polymer derived from a polyisocyanate compound and a polyactive hydrogen compound, said polyurethane polymer comprising at least one pendant antimicrobial quaternary ammonium group, wherein said polymeric composition is soluble in water.

58. (New) A polymeric composition comprising a polyurethane polymer derived from a polyisocyanate compound and a polyactive hydrogen compound, said polyurethane having an effective amount of covalently bound, antimicrobially active ammonium groups pendant to the polyurethane polymer in a terminal position and/or as a side chain along the polyurethane polymer backbone, wherein the antimicrobially active ammonium group is derived from a compound of the formula (I):



wherein:

m is 1 or 2;

p is 1;

and q = 1 or 2 provided that m+q = 3;

x is 6 to 20;

y is 2-8;

z is 2-10;

L is O, S, NR₅ or NH; where R₅ is C₁₋₄ alkyl or benzyl;each R₄ is independently C₁₋₄ alkyl, phenyl or C₆₋₈ aralkyl; and

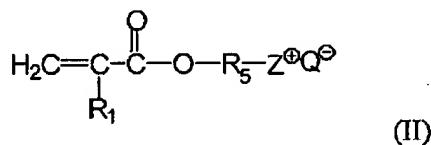
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Q^- is halogen, alkyl sulfate, or carboxylate, sulfonate, sulfate, phosphonate or phosphate;

or

an alkylaminoacrylate compound of the formula (II):

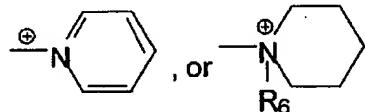


wherein:

R_1 is H or CH_3 ;

R_5 is a C_{2-8} alkylene;

Q^- is a halogen, alkyl sulfate, alkylsulfonate or carboxylate;



Z^\oplus is $-N^\oplus(R_4)_2R_3$, $-N^\oplus R_4(R_3)_2$,

wherein:

R_3 is C_{8-20} alkyl, benzyl, or substituted benzyl; and

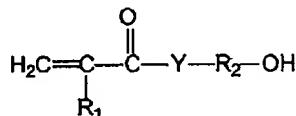
R_6 is H or C_{1-4} alkyl.

59. (New) The polymeric composition of claim 58, wherein the antimicrobial quaternary ammonium group is derived from a compound of formula (I) and is an alkylamidopropyltrimethylhydroxyalkyl ammonium salt.
60. (New) The polymeric composition of claim 58, wherein the polyurethane polymer comprises a cationic stabilizing moiety.
61. (New) The polymeric composition of claim 58, wherein the at least one antimicrobial quaternary ammonium group is derived from an alkylaminoacrylate compound of the

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formula (II) and is located on an addition polymerized group and wherein said polyurethane polymer is derived from a monol vinylic compound and wherein the total equivalents of isocyanate used to form said polyurethane polymer is greater than the equivalents of active hydrogen groups contributed by said polyactive hydrogen compound used to form said polyurethane polymer and said monol or polyol vinylic compound, and the addition polymerization group is formed by reaction of said monol or polyol vinylic compound with a vinylic compound having at least one antimicrobial quaternary ammonium group and wherein wherein said monol vinylic compound is selected from allyl alcohol, allyl amine, or a hydroxyalkyl acrylic compound of the formula:



wherein:

Y is O or NH;

R₁ is H or CH₃;

R₂ is a C₂₋₈ alkylene;

or mixtures thereof.

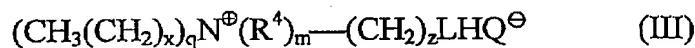
62. (New) The polymeric composition of claim 61, wherein the monol vinylic compound is hydroxyethylmethacrylate or hydroxyethylacrylate.
63. (New) The polymeric composition of claim 58, wherein the alkylaminoacrylate compound of the formula (II) is selected from the group of N,N-dimethyl-N-alkyl-N-alkylmethacryl ammonium salts such as N,N-dimethyl-N-dodecyl-N-ethylmethacryl salt, N,N-dimethyl-N-hexadecyl-N-ethylmethacryl salt, N,N-dimethyl-N-benzyl-N-lauroylmethacryl salt, N,N-dimethyl-N-(2,4-dichlorobenzyl)-N-ethylmethacryl salt, N,N-diethyl-N-hexadecyl-N-ethylmethacryl salt, wherein the counter ion is selected from chloride, bromide, iodide, C1-4 alkyl sulfate, sulfate, or carboxylate.

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64. (New) An article comprising a substrate coated with the polymeric composition according to claim 58.

65. (New) A polymeric composition comprising a polyurethane polymer derived from a polyisocyanate compound and a polyactive hydrogen compound, said polyurethane having an effective amount of covalently bound, antimicrobially active ammonium groups pendant to the polyurethane polymer in a terminal position and/or as a side chain along the polyurethane polymer backbone, wherein the antimicrobially active ammonium group is derived from a compound of the formula (III):



wherein:

m is 1 or 2;

q = 1 or 2 provided that m+q = 3;

x is 6 to 20;

z is 2-10;

L is O, S, NR⁵ or NH; where R⁵ is C₁₋₄ alkyl or benzyl;

each R⁴ is independently C₁₋₄ alkyl, phenyl or C₆₋₈ aralkyl; and

Q[⊖] is halogen, alkyl sulfate, or carboxylate, sulfonate, sulfate, phosphonate or phosphate;